

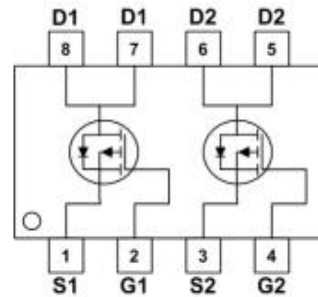
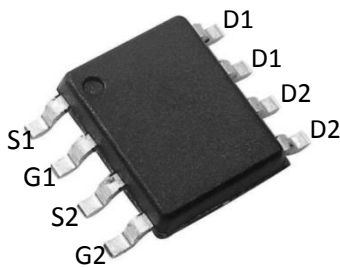
Features

The TW4805A is the high cell density trench P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The TW4805A meet the RoHS and Green Product

Product Summary

V _{DS}	-30V
I _D	-9.5A
R _{DS(ON)} (at V _{GS} =-10V)	<25mΩ
R _{DS(ON)} (at V _{GS} =-4.5V)	< 42mΩ



Dual SOP-8

Maximum Ratings(Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DS}	-30	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current V _{GS} @ 10V ¹	I _D @TA=25°C	-9.5	A
Continuous Drain Current V _{GS} @ 10V ¹	I _D @TA =100°C	-5.9	
Pulsed Drain Current ²	I _{DM}	-36	
Single Pulse Avalanche Energy	E _{AS}	25	mJ
Total Power Dissipation	P _D @TA=25°C	3.3	W
Storage Temperature Range	T _{STG}	-55 to 150	°C
Operating Junction Temperature Range	T _J	-55 to 150	
Thermal Data			
Parameter	Symbol	Max.	Unit
Thermal Resistance Junction-ambient	R _{θJA}	38	°C/W

Electrical Characteristics(TJ=25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static Parameters						
Drain-Source Breakdown Voltage	BVDSS	VGS = 0V, ID = -250μA	-30			V
Gate Threshold Voltage	VGS(th)	VDS =VGS, ID = -250μA	-1.0		-2.5	V
Gate-Body leakage Current	IGSS	VDS = 0V, VGS = ±20V			±100	nA
Zero Gate Voltage Drain Current	IDSS	VDS = -24V, VGS = 0V			-1	μA
Static Drain-Source On-Resistance	RDS(on)	VGS = -10V, ID = -6A		18	25	mΩ
		VGS = -4.5V, ID = -4A		25	42	mΩ
Dynamic Parameters						
Input Capacitance	Ciss	VDS = -15V, VGS =0V, f =1MHz		1345		pF
Output Capacitance	Coss			194		pF
Reverse Transfer Capacitance	Crss			158		pF
Total Gate Charge	Qg	VDS=- 15V , VGS=-4.5V , ID=-6A		12.6		nC
Gate Source Charge	Qgs			4.8		nC
Gate Drain Charge	Qgd			4.8		nC
Switching Parameters						
Turn-On DelayTime	td(on)	VDD=- 15V , VGS=- 10V , RG=3.3Ω ID=-6A		4.6		ns
Turn-On Rise Time	tr			14.8		ns
Turn-Off DelayTime	td(off)			41		ns
Turn-Off Fall Time	tf			19.6		ns
Drain-Source Diode Characteristics and Maximum Ratings						
Continuous Source Current ^{1,4}	IS	VG=VD=0V , Force Current			-6.5	A
Pulsed Source Current	ISM				-26	A
Diode Forward Voltage ²	VSD	VGS=0V , IS=- 1A , TJ=25C			-1.2	V
Reverse Recovery Time	trr	IF=-6A , dI/dt=100A/μs , TJ=25℃		16.3		ns
Reverse Recovery Charge	Qrr			5.9		nc

Note :

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics

Figure1 : Output Characteristics

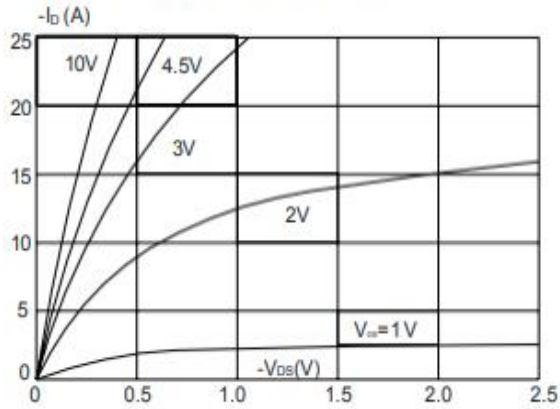


Figure 2 : Typical Transfer Characteristics

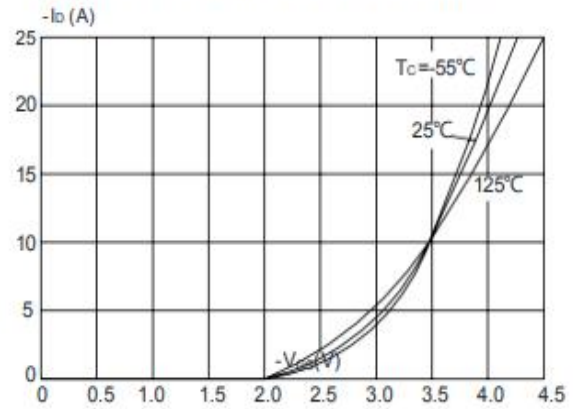


Figure 3 : On-resistance vs. Drain Current

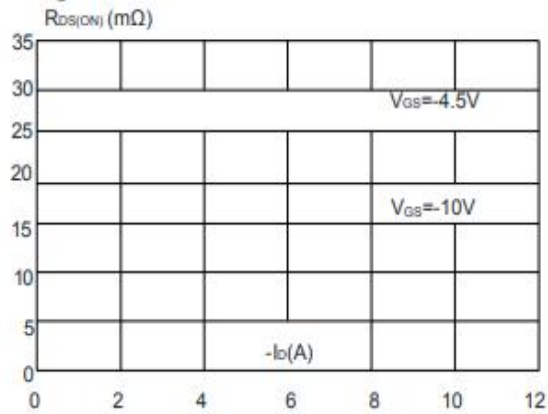


Figure 4 : Body Diode Characteristics

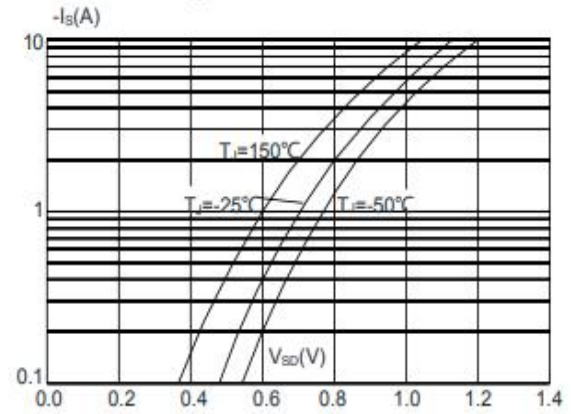


Figure 5 : Gate Charge Characteristics

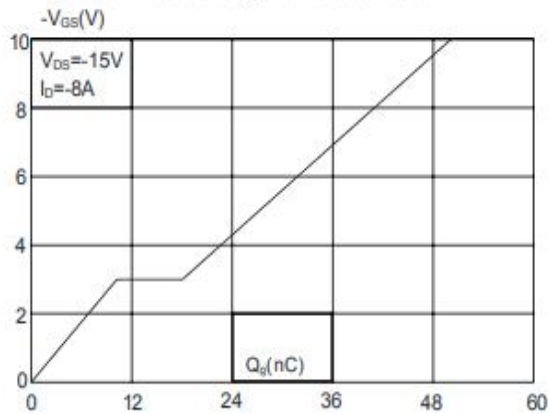
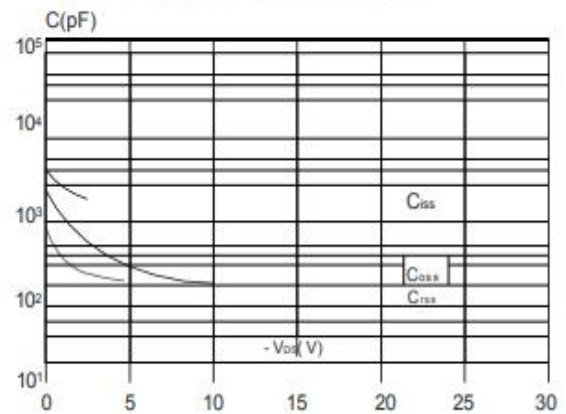


Figure 6 : Capacitance Characteristics



Typical Electrical and Thermal Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

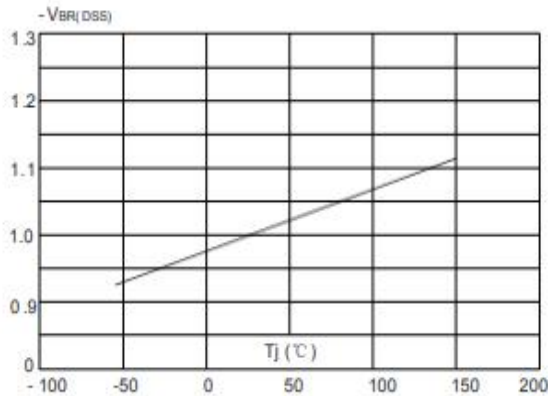


Figure 8: Normalized on Resistance vs. Junction Temperature

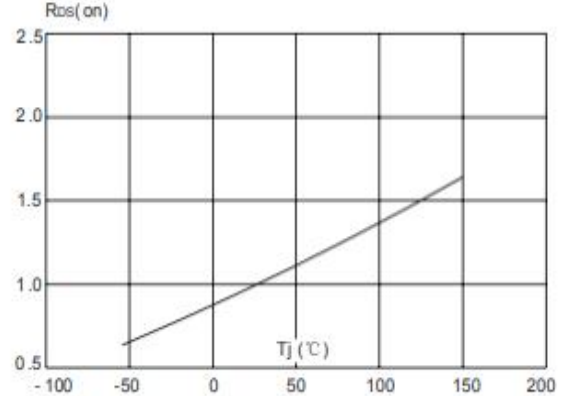


Figure 9: Maximum Safe Operating Area

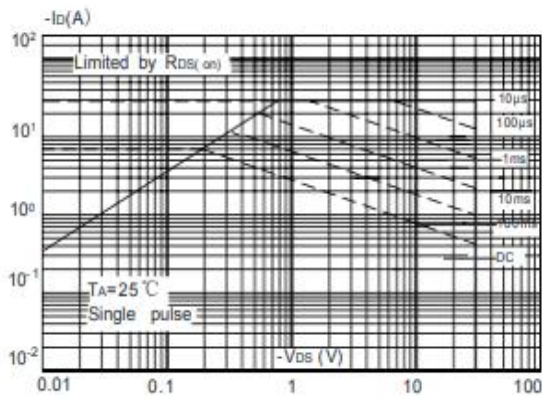
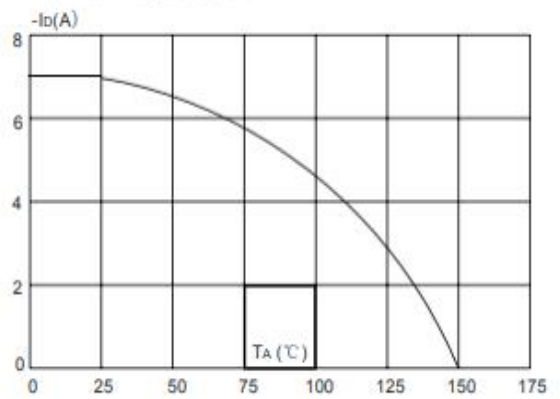
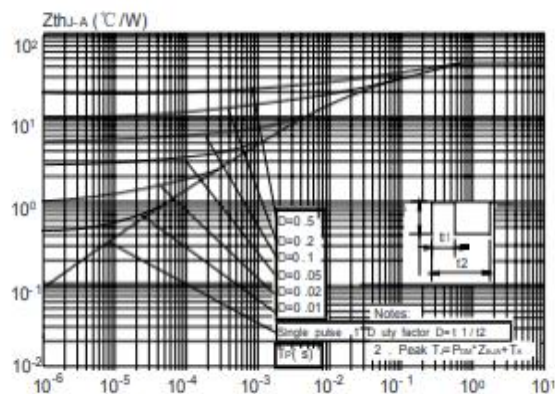


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

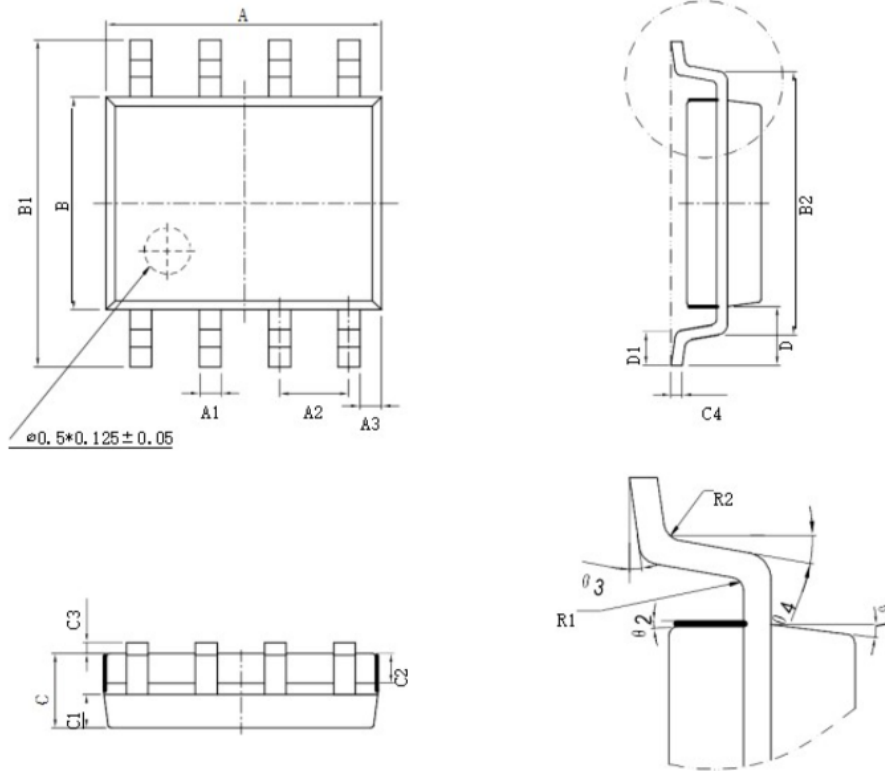


Maximum Effective
Transient Thermal Impedance, Junction-to-Ambient



Physical Dimensions

SOP-8



Symbols	Dimension(mm)		Symbols	Dimension(mm)	
	Min	Max		Min	Max
A	4.80	5.00	C3	0.05	0.20
A1	0.356	0.456	C4	0.203	0.233
A2	1.27 TYP		D	1.05 TYP	
A3	0.345 TYP		D1	0.40	0.80
B	3.80	4.00	R1	0.20 TYP	
B1	5.80	6.20	R2	0.20 TYP	
B2	5.00 TYP		$\theta 1$	17° TYP4	
C	1.30	1.60	$\theta 2$	13° TYP4	
C1	0.55	0.65	$\theta 3$	0° ~ 8°	
C2	0.55	0.65	$\theta 4$	4° ~ 12°	